

Notice of Allowability

Application No.

09/399,310

Examiner

Patrick J Connolly

Applicant(s)

BIRANG ET AL.

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 07 September 2004.
2. ☒ The allowed claim(s) is/are 1-76.
3. ☒ The drawings filed on 20 September 1999 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 9/17/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

GREGORY J. MATHLEY, JR.
PRIMARY EXAMINER

DETAILED ACTION

Terminal Disclaimer

The terminal disclaimer filed on September 7, 2004 disclaiming the terminal portion of any patent granted on this application that would extend beyond the expiration date of U.S. Patent Nos. 5,964,643 and 6,537,133 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

Claims 1-76 allowed.

The following is an examiner's statement of reasons for allowance:

As to claim 1, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for chemical polishing of a wafer including: a rotatable polishing platen to support a polishing pad, the platen having a hole formed therethrough and rotatably mounted to a chassis; and an endpoint detector including a window disposed adjacent to the hole formed through the platen, the window rotating with the platen and intermittently providing a pathway for a light beam to impinge on the wafer during at least a part of a period of time when the wafer overlies the window and a stationary detector to receive light from the beam reflected by the wafer through the window, in combination with the rest of the limitations of claim 1.

As to claim 25, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method for chemical mechanical polishing of a wafer including: intermittently passing a light beam through a window that moves with a polishing pad, the window intermittently providing a pathway for the light beam to impinge on the wafer during at least part of a period of time when the wafer overlies the window; and detecting light of the light beam

Art Unit: 2877

reflected from the wafer through the window to a stationary detector, in combination with the rest of the limitations of claim 25.

As to claim 44, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for chemical mechanical polishing of a wafer including: an optical monitoring system including a window that moves with a polishing pad, the window intermittently providing a pathway for a light beam to impinge on the wafer during at least part of the time when the wafer overlies the window and a stationary detector to receive reflections of the light beam from the wafer through the window, in combination with the rest of the limitations of claim 44.

As to claim 51, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for chemical mechanical polishing of a wafer including: a polishing pad mounted on a pad support, said pad having at least a portion formed of a light-transmitting material; and an optical monitoring system comprising a detector and a light source arranged to direct a light beam at least during part of the polishing operation through the light-transmitting material of said polishing pad so that the beam impinges on the wafer and reflects back through the light-transmitting material to the detector and thereby provides in-situ monitoring of the polishing process, in combination with the rest of the limitations of claim 51.

As to claim 71, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method for chemical mechanical polishing a wafer including: during at least part of the polishing operation, directing a light beam through the light-transmitting material of a polishing pad so that the light beam impinges on the wafer and reflects back through the light-

Art Unit: 2877

transmitting material to an optical detector; and determining a point to end polishing based on a signal from the detector, in combination with the rest of the limitations of claim 71.

Art Unit: 2877

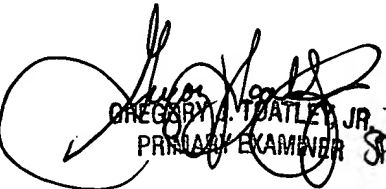
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J Connolly whose telephone number is 571.272.2412. The examiner can normally be reached on 9:00 am - 7:00 pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J Toatley, Jr. can be reached on 571.272.2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

pjc PJC
11.01.2004


GREGORY J. TOATLEY, JR.
PRIMARY EXAMINER